

## TWO NEW SPECIES OF THE ANT GENUS *Polyrhachis* SMITH FROM YUNNAN, CHINA<sup>\*</sup> (Hymenoptera: Formicidae)

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**Abstract** In this paper, 2 new species of the ant genus *Polyrhachis* Smith found in Yunnan Province of China, *P. cyphonota* sp. n. and *P. bakana* sp. n., were described. *P. cyphonota* sp. n. belongs to the subgenus *Cyrtomyrma* Forel. *P. bakana* sp. n. belongs to the subgenus *Myrmhopla* Forel. *P. bakana* sp. n. was found in the tropical rain forest of Xishuangbanna Nature Reserve.

**Key words** Hymenoptera, Formicidae, *Polyrhachis*, New species, Yunnan

*Polyrhachis* Smith (1858) is a large genus in Formicidae. According to Bolton (1995a, 1995b), 477 species were described in the world, and Indo-Australian region is the center of the genus' distribution. Hung (1967) had a revisionary study of the subgenera of *Polyrhachis*, but most subgenera are much large and not convenient for identification of species. In contrast, species-group dividing is a useful way to recognize the numerous members in this large genus, just like the works of Bolton (1975) and Kohout (1987, 1989). However, much revisionary work in species-groups remains to be done.

Chinese species of *Polyrhachis* were reported by Smith (1858), Forel (1879), Viehmeyer (1912), Wheeler (1930-1931), and Chou *et al.* (1991). Recently, Wang *et al.* (1991) and Wu *et al.* (1995) had comprehensive studies of the genus and most Chinese species were treated. Tang *et al.* (1995) also reported part species of *Polyrhachis*. During the course investigating ant fauna of Southwestern China, 2 new species were discovered in Yunnan Province. Up to date, 31 species and 1 subspecies of *Polyrhachis* are known in China.

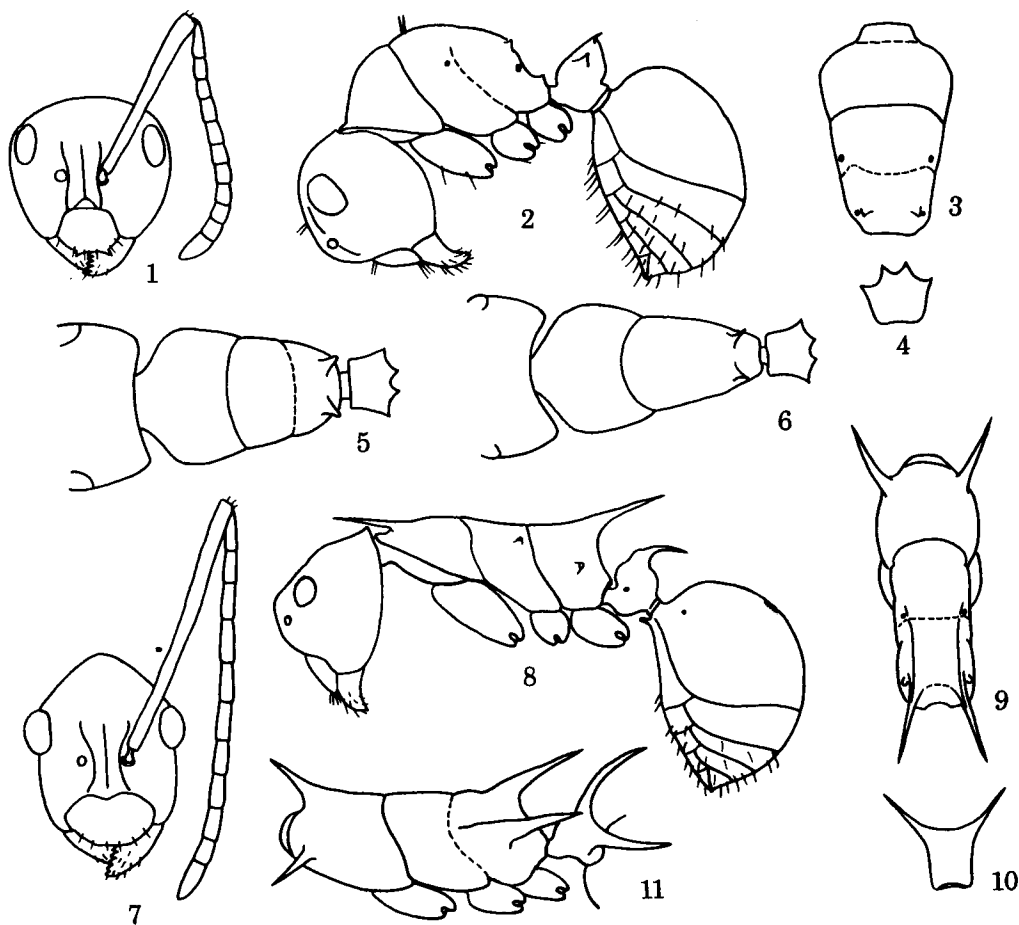
Measurements and indices are as defined in Bolton (1973, 1975): Total length—TL, Head length—HL, Head width—HW, Cephalic index— $CI=HW \times 100 / HL$ , Scape length—SL, Scape index— $SI=SL \times 100 / HW$ , Pronotal width—PW, Alitrunk length—AL, Maximum diameter of eye—ED. All measurements are expressed in millimeters. The type

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specimens are deposited in the Insect Collection, Department of Forest Protection, Southwest Forestry College, Kunming, Yunnan, China.



Figs. 1-11 *Polyrhachis* workers

1-4. *P. cyphonota* sp. n.; 5. *P. liniae* Donisthorpe; 6. *P. debilis* Emery; 7-10. *P. bakana* sp. n.; 11. *P. abdominalis* Smith. 1, 7. Head in full face view; 2, 8. Body in profile view; 3, 9. Alitrunk in dorsal view; 4, 10. Petiolar node in front view; 5, 6. Alitrunk and petiolar node in dorsal view; 11. Alitrunk in laterodorsal view (5, 6. after Donisthorpe; 11 after Bingham).

# 1 *Polyrhachis cyphonota* sp. n. Figs. 1-4

Holotype worker; TL 5.7, HL 1.67, HW 1.63, CI 98, SL 1.87, SI 114, PW 1.30, AL 2.07, ED 0.47. Head subtriangular, narrowing anteriorly; occipital margin roundly convex, occipital corners rounded; lateral sides evenly convex; ventral surface of head marginate laterally along the whole length. Eyes close to occipital corners. Mandibles with 5 teeth. Clypeus without longitudinal central carina; anterior margin

weakly emarginate in the center, with a pair of small anterolaterally pointed denticles. Antennal scapes surpassing occipital corners by  $3/5$  of its length. In profile view, dorsum of alitrunk strongly convex, rounded laterally. Shoulders of pronotum rounded. Promesonotal suture obvious and depressed, metanotal groove absent. Propodeum with a pair of small blunt denticles, declivity nearly vertical. In profile view, petiolar node narrowing upwards, anterior and posterior faces strongly convex; in front view, petiolar node with 4 subequal teeth, the inner pair closer and slightly posteriorly curved. Gaster ovate. Mandibles with close microreticulation, subopaque. Head, alitrunk, petiolar node, and gaster with close superficial microreticulation, more shining; lateral surfaces of meso- and metathorax, and base of petiole with close and coarse reticulation, opaque. The whole insect and its appendages covered with sparse depressed pubescences, distance between them about 2–3 times as long as one pubescence; flagella and tarsi with abundant pubescences. Setae restricted at mandibles, clypeus, and the apical 4 segments of gaster, vertex of head and mesonotum each with a pair of erect setae; pronotum, propodeum, dorsum of first gastral segment, scapes, and tibiae without setae. Color black; trochanters, femora, and tibiae red.

Paratype workers: TL 4.7–5.7, HL 1.60–1.67, HW 1.50–1.65, CI 94–100, SL 1.80–1.95, SI 112–127, PW 1.20–1.30, AL 2.00–2.10, ED 0.40–0.47 ( $n=6$ ). As holotype.

Holotype: worker, Wenshan (23.3° N, 104.2° E), 1320 m, Wenshan County, Yunnan Province, collected on the shrub in mountain area, 1991–VIII–30, No. A91–437 (Xu Zhenghui). Paratypes: 9 workers, with same data as holotype; 10 workers, with same data as holotype but No. A91–444; 1 worker, Meitan, 850 m, Meitan County, Guizhou Province, 1992–VIII–27, No. A92–555 (Xu Zhenghui).

This new species belongs to the subgenus *Cyrtomyrma* Forel of *Polyrhachis*, and is close to *P. lineae* Donisthorpe (1938) (Fig. 5) from Dutch New Guinea and *P. debilis* Emery (1887) (Fig. 6) from New Guinea, but its trochanters, femora, and tibiae of legs are red, its denticles of propodeum are very short and tubercle-like, and its body is smaller with a total length of 4.7–5.5 mm.

## 2 *Polyrhachis bakana* sp. n. Figs. 7–10

Holotype worker: TL 8.0, HL 2.20, HW 1.60, CI 73, SL 3.00, SI 188, PW 1.25, AL 3.15, ED 0.50. Head longer than broad, lateral sides nearly straight and parallel, narrowed near the bases of mandibles; occiput subtriangular, occipital margin strongly prominent in the middle, lateroposterior margins of occiput nearly straight. Eyes prominent and well behind midline of the head. Mandibles with 5 teeth. Clypeus longitudinally convex in the middle, but without carina; anterior margin slightly roundly convex. Antennal scapes compressed, surpassing occipital margin by  $3/5$  of its length. In profile view, the place where pronotum meets mesonotum is the highest, slightly low-

ering down anteriorly and posteriorly, mesonotum slightly concave. Pronotum and mesonotum rounded laterally, but posterior  $1/5$  of mesonotal dorsum weakly marginate. Promesonotal suture distinct and slightly depressed; metanotal groove visible, only depressed on the lateral sides. Pronotum and propodeum with long spines; pronotal spines straight and anteriorly pointed, slightly shorter than propodeal ones; propodeal spines dorsoposteriorly pointed, wide at bases. Dorsum of propodeum straight, longitudinally concave in the middle, and marginate laterally; declivity concave. In dorsal view, pronotal spines lateroanteriorly pointed, propodeal ones lateroposteriorly pointed and slightly curved outwards. Middle and hind tibiae compressed. In profile view, anterior, posterior, and dorsal faces of petiolar node strongly convex; petiolar spines slender and curved backwards, about  $1/2$  length of propodeal ones; in dorsal view, the spines lateroposteriorly pointed. Mandibles finely longitudinally striate and sparsely punctate, subopaque. Head, alitrunk, and petiole uniformly, closely, and coarsely punctate, opaque. Gaster uniformly, closely, and finely punctate, opaque. The whole body and appendages covered with sparse short depressed pubescences, distance between them about 2–3 times as long as one pubescence. Setae absent from the whole body except mouthparts and apex of gaster. Color black; insertions of antennae, palpi, and apex of gaster yellowish brown; eyes grayish brown.

Paratype workers: TL 7.3–8.1, HL 1.80–2.20, HW 1.30–1.60, CI 68–75, SL 2.70–3.00, SI 188–214, PW 1.10–1.25, AL 2.75–3.15, ED 0.45–0.50 ( $n=5$ ). As holotype, but in some individuals, propodeal spines only slightly divergent in dorsal view.

Holotype: worker, Bakaxiaozhai (21.9° N, 101.1° E), 840 m, Menglun Town, Mengla County, Yunnan Province, 676 workers were found in a nest in decayed bamboo on the ground in the tropical rain forest of Xishuangbanna Nature Reserve, 1996–III –8, No. A96–347 (Yang Zhongwen). Paratypes: 3 workers, with same data as holotype; 1 worker, with same data as holotype, but No. A96–321 (Du Yongchao).

This new species belongs to the subgenus *Myrmhopla* Forel of *Polyrhachis*, and is close to *P. aedipus* Forel (1893) from Sri Lanka, but its body has not a greenish-bronze tint, its gaster is closely finely punctate and opaque, and its propodeal spines are slightly divergent to strongly divergent in dorsal view. It is also close to *P. abdominalis* Smith (1858) (Fig. 11) (= *P. hector* Smith, 1857), but its gaster is black, and its whole body is covered with sparse pubescences.

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## 云南多刺蚁属二新种记述

(膜翅目: 蚁科)

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**摘要** 在云南省发现多刺蚁属 *Polyrhachis* Smith 2 新种, 即: 驼背多刺蚁 *P. cyphonota* sp. n. 和巴卡多刺蚁 *P. bakana* sp. n.。驼背多刺蚁隶属于驼背多刺蚁亚属 *Cyrtomyrma* Forel。巴卡多刺蚁隶属于六刺多刺蚁亚属 *Myrmhopla* Forel。巴卡多刺蚁发现于西双版纳自然保护区热带雨林中。

**关键词** 膜翅目, 蚁科, 多刺蚁属, 新种, 云南

**中图分类号** Q969.554.2